UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO.   : 6,872,546 B1

DATED   : March 29, 2005

INVENTOR(S)   : Hastings et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Title page,
Item [56], **References Cited**, OTHER PUBLICATIONS, fourth reference should read:
-- Lee et al., "A novel secretory Tumor Necrosis Factor-inducible Protein (TSG-6) is a member of the family of Hyaluronate Binding Proteins, closely related to the Adhesion Receptor CD44" Jan. 1992, vol. 116, No. 2, pp. 545-557.* --.

Column 315,
Starting at line 36, before claims, insert the attached sequence listing.
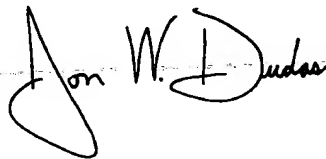
Column 317,
Lines 11-19, delete the second subsets (a)-(g).

Column 318,
Line 9, after "claim 33," insert -- wherein said --.

Signed and Sealed this

Fourth Day of April, 2006

JON W. DUDAS
Director of the United States Patent and Trademark Office

SEQUENCE LISTING

<160> NUMBER OF SEQ ID NOS: 37

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ggccacgcag acaggccggg tgttcctgca gctgagggtc gccgtggcc atg atg gac 178
                                                        Met Met Asp
                                                         1

cag ggc tgc cgg gaa atc ctt acc aca gcg ggc cct ttc acc gtg ctg   226
Gln Gly Cys Arg Glu Ile Leu Thr Thr Ala Gly Pro Phe Thr Val Leu
     5   10   15

gtg cca tcc gtc tcc tcc ttc tcc tcc agg acc atg aat gca tcc ctt   274
Val Pro Ser Val Ser Ser Phe Ser Ser Arg Thr Met Asn Ala Ser Leu
 20   25   30   35

gcc cag cag ctc tgt aga cag cac atc atc gca ggg cag cac atc ctg   322
Ala Gln Gln Leu Cys Arg Gln His Ile Ile Ala Gly Gln His Ile Leu
                 40   45   50

gag gac aca agg acc caa caa aca cga agg tgg tgg acg ctg gcc ggg   370
Glu Asp Thr Arg Thr Gln Gln Thr Arg Arg Trp Trp Thr Leu Ala Gly
             55   60   65

cag gag atc acc gtc acc ttt aac caa ttc acg aaa tac tcc tac aag   418
Gln Glu Ile Thr Val Thr Phe Asn Gln Phe Thr Lys Tyr Ser Tyr Lys
             70   75   80

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tac aaa gac cag ccc cag cag acg ttc aac atc tac aag gcc aac aac    466
Tyr Lys Asp Gln Pro Gln Gln Thr Phe Asn Ile Tyr Lys Ala Asn Asn
    85                      90              95

ata gca gct aat ggc gtc ttc cac gtg gtc act ggc ctg cgg tgg cag    514
Ile Ala Ala Asn Gly Val Phe His Val Val Thr Gly Leu Arg Trp Gln
100             105             110                     115

gcc ccc tct ggg acc cct ggg gat ccc aag aga act atc gga cag atc    562
Ala Pro Ser Gly Thr Pro Gly Asp Pro Lys Arg Thr Ile Gly Gln Ile
            120             125                 130

ctc gcc tct acc gag gcc ttc agc cgc ttt gaa acc atc ctg gag aac    610
Leu Ala Ser Thr Glu Ala Phe Ser Arg Phe Glu Thr Ile Leu Glu Asn
            135                 140                 145

tgt ggg ctg ccc tcc atc ctg gac gga cct ggg ccc ttc aca gtc ttt    658
Cys Gly Leu Pro Ser Ile Leu Asp Gly Pro Gly Pro Phe Thr Val Phe
            150                 155                 160

gcc cca agc aat gag gct gtg gac agc ttg cgt gac ggc cgc ctg atc    706
Ala Pro Ser Asn Glu Ala Val Asp Ser Leu Arg Asp Gly Arg Leu Ile
            165                 170                 175

tac ctc ttc aca gcg ggt ctc tct aaa ctg cag gag ttg gtg cgg tac    754
Tyr Leu Phe Thr Ala Gly Leu Ser Lys Leu Gln Glu Leu Val Arg Tyr
180             185                 190                     195

cac atc tac aac cac ggc cag ctg acc gtt gag aag ctc atc tcc aag    802
His Ile Tyr Asn His Gly Gln Leu Thr Val Glu Lys Leu Ile Ser Lys
                200                 205                 210

ggt cgg atc ctc acc atg gcg aac cag gtc ctg gct gtg aac att tct    850
Gly Arg Ile Leu Thr Met Ala Asn Gln Val Leu Ala Val Asn Ile Ser
            215                 220                 225

gag gag ggg cgc atc ctg ctg gga ccc gag ggg gtc ccg ctg cag agg    898
Glu Glu Gly Arg Ile Leu Leu Gly Pro Glu Gly Val Pro Leu Gln Arg
            230                 235                 240

gta gac gtg atg gcc gcc aat ggc gtg atc cac atg ctg gac ggc atc    946
Val Asp Val Met Ala Ala Asn Gly Val Ile His Met Leu Asp Gly Ile
            245                 250                 255
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ctg ctg ccc ccg acc atc ctg ccc atc ctg ccc aag cac tgc agc gag    994
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260             265             270             275

gag cag cac aag att gtg gcg ggc tcc tgt gtg gac tgc caa gcc ctg    1042
Glu Gln His Lys Ile Val Ala Gly Ser Cys Val Asp Cys Gln Ala Leu
            280             285             290

aac acc agc acg tgt ccc ccc aac agt gtg aag ctg gac atc ttc ccc    1090
Asn Thr Ser Thr Cys Pro Pro Asn Ser Val Lys Leu Asp Ile Phe Pro
        295             300             305

aag gag tgt gtc tac atc cat gac cca acg ggg ctc aat gtg cta aag    1138
Lys Glu Cys Val Tyr Ile His Asp Pro Thr Gly Leu Asn Val Leu Lys
        310             315             320

aag ggc tgt gcc agc tac tgc aac caa acc atc atg gaa caa ggc tgc    1186
Lys Gly Cys Ala Ser Tyr Cys Asn Gln Thr Ile Met Glu Gln Gly Cys
        325             330             335

tgc aaa ggt ttt ttc ggg cct gac tgc acg cag tgt cct ggg ggc ttc    1234
Cys Lys Gly Phe Phe Gly Pro Asp Cys Thr Gln Cys Pro Gly Gly Phe
340             345             350             355

tcc aac ccc tgc tat ggc aaa ggc aat tgc agt gat ggg atc cag ggc    1282
Ser Asn Pro Cys Tyr Gly Lys Gly Asn Cys Ser Asp Gly Ile Gln Gly
            360             365             370

aat ggg gcc tgc ctc tgc ttc cca gac tac aag ggc atc gcc tgc cac    1330
Asn Gly Ala Cys Leu Cys Phe Pro Asp Tyr Lys Gly Ile Ala Cys His
            375             380             385

atc tgc tcg aac cca aac aag cat gga gag caa tgc cag gaa gac tgc    1378
Ile Cys Ser Asn Pro Asn Lys His Gly Glu Gln Cys Gln Glu Asp Cys
        390             395             400

ggc tgt gtc cat ggt ctc tgc gac aac cgc cca ggc agt ggg ggg gtg    1426
Gly Cys Val His Gly Leu Cys Asp Asn Arg Pro Gly Ser Gly Gly Val
        405             410             415
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tgc cag cag ggc acg tgt gcc cct ggc ttc agt ggc cgg ttc tgc aac    1474
Cys Gln Gln Gly Thr Cys Ala Pro Gly Phe Ser Gly Arg Phe Cys Asn
420                 425             430                 435


gag tcc atg ggg gac tgt ggg ccc aca ggg ctg gcc cag cac tgc cac    1522
Glu Ser Met Gly Asp Cys Gly Pro Thr Gly Leu Ala Gln His Cys His
                440             445                 450


ctg cat gcc cgc tgt gtt agc cag gag ggt gtt gcc aga tgt cgc tgt    1570
Leu His Ala Arg Cys Val Ser Gln Glu Gly Val Ala Arg Cys Arg Cys
                455             460                 465


ctt gat ggc ttt gag ggt gat ggc ttc tcc tgc aca cct agc aac ccc    1618
Leu Asp Gly Phe Glu Gly Asp Gly Phe Ser Cys Thr Pro Ser Asn Pro
                470             475                 480


tgc tcc cac ccg gac cgt gga ggc tgc tca gag aat gct gag tgt gtc    1666
Cys Ser His Pro Asp Arg Gly Gly Cys Ser Glu Asn Ala Glu Cys Val
        485             490                 495


cct ggg tcc ctg ggc acc cac cac tgc aca tgc cac aaa ggc tgg agt    1714
Pro Gly Ser Leu Gly Thr His His Cys Thr Cys His Lys Gly Trp Ser
500                 505             510                 515


ggg gat ggc cgc gtc tgt gtg gct att gac gag tgt gag ctg gac gtg    1762
Gly Asp Gly Arg Val Cys Val Ala Ile Asp Glu Cys Glu Leu Asp Val
                520             525                 530


aga ggt ggc tgc cac acc gat gcc ctc tgc agc tat gtg ggc ccc ggg    1810
Arg Gly Gly Cys His Thr Asp Ala Leu Cys Ser Tyr Val Gly Pro Gly
                535             540                 545


cag agc cga tgc acc tgc aag ctg ggc ttt gcc ggg gat ggc tac cag    1858
Gln Ser Arg Cys Thr Cys Lys Leu Gly Phe Ala Gly Asp Gly Tyr Gln
                550             555                 560


tgc agc ccc atc gac ccc tgc cgg gca ggc aat ggc ggc tgc cac ggc    1906
Cys Ser Pro Ile Asp Pro Cys Arg Ala Gly Asn Gly Gly Cys His Gly
        565             570                 575
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ctg gag ctg gag gca aat gcc cac ttc tcc atc ttc tac caa tgg ctt    1954
Leu Glu Leu Glu Ala Asn Ala His Phe Ser Ile Phe Tyr Gln Trp Leu
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aag agt gcc ggc atc acg ctt cct gcc gac cgc cga gtc aca gcc ctg    2002
Lys Ser Ala Gly Ile Thr Leu Pro Ala Asp Arg Arg Val Thr Ala Leu
                600         .       605             610

gtg ccc tcc gag gct gca gtc cgt cag ctg agc ccc gag gac cga gct    2050
Val Pro Ser Glu Ala Ala Val Arg Gln Leu Ser Pro Glu Asp Arg Ala
                615             620             625

ttc tgg ctg cag cca agg acg ctg ccg aac ctg gtc agg gcc cat ttt    2098
Phe Trp Leu Gln Pro Arg Thr Leu Pro Asn Leu Val Arg Ala His Phe
            630             635             640

ctc cag ggt gcc ctc ttc gag gag gag ctg gcc cgg ctg ggt ggg cag    2146
Leu Gln Gly Ala Leu Phe Glu Glu Glu Leu Ala Arg Leu Gly Gly Gln
        645             650             655

gaa gtg gcc acc ctg aac ccc acc aca cgc tgg gag att cgc aac att    2194
Glu Val Ala Thr Leu Asn Pro Thr Thr Arg Trp Glu Ile Arg Asn Ile
660             665             670             675

agt ggg agg gtc tgg gtg cag aat gcc agc gtg gat gtg gct gac ctc    2242
Ser Gly Arg Val Trp Val Gln Asn Ala Ser Val Asp Val Ala Asp Leu
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ctt gcc acc aac ggt gtc cta cac atc ctc agc cag gtc tta ctg ccc    2290
Leu Ala Thr Asn Gly Val Leu His Ile Leu Ser Gln Val Leu Leu Pro
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ccc cga ggg gat gtg ccc ggt ggg cag ggg ttg ctg cag cag ctg gac    2338
Pro Arg Gly Asp Val Pro Gly Gly Gln Gly Leu Leu Gln Gln Leu Asp
        710             715             720

ttg gtg cct gcc ttc agc ctc ttc cgg gaa ttg ctg cag cac cat ggg    2386
Leu Val Pro Ala Phe Ser Leu Phe Arg Glu Leu Leu Gln His His Gly
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acc aac cgc tcc ctg gag gcc cag ggc aac agc agt cac ctg gac gca    2482
Thr Asn Arg Ser Leu Glu Ala Gln Gly Asn Ser Ser His Leu Asp Ala
                760             765                     770

gac aca gtg cgg cac cat gtg gtc ctg ggg gag gcc ctc tcc atg gaa    2530
Asp Thr Val Arg His His Val Val Leu Gly Glu Ala Leu Ser Met Glu
                775             780                     785

acc ctg cgg aag ggt gga cac cgc aac tcc ctc ctg ggc cct gcc cac    2578
Thr Leu Arg Lys Gly Gly His Arg Asn Ser Leu Leu Gly Pro Ala His
                790             795                     800

tgg atc gtc ttc tac aac cac agt ggc cag cct gag gtg aac cat gtg    2626
Trp Ile Val Phe Tyr Asn His Ser Gly Gln Pro Glu Val Asn His Val
        805             810             815

cca ctg gaa ggc ccc atg ctg gag gcc cct ggc cgc tcg ctg att ggt    2674
Pro Leu Glu Gly Pro Met Leu Glu Ala Pro Gly Arg Ser Leu Ile Gly
820             825             830                     835

ctg tcg ggg gtc ctg acg gtg ggc tca agt cgc tgc ctg cat agc cac    2722
Leu Ser Gly Val Leu Thr Val Gly Ser Ser Arg Cys Leu His Ser His
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gct gag gcc ctg cgg gag aaa tgt gta aac tgc acc agg aga ttc cgc    2770
Ala Glu Ala Leu Arg Glu Lys Cys Val Asn Cys Thr Arg Arg Phe Arg
                855             860             865

tgc act cag ggc ttc cag ctg cag gac aca ccc agg aag agc tgt gtc    2818
Cys Thr Gln Gly Phe Gln Leu Gln Asp Thr Pro Arg Lys Ser Cys Val
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tac cga tct ggc ttc tcc ttc tcc cgg ggc tgc tct tac aca tgt gcc    2866
Tyr Arg Ser Gly Phe Ser Phe Ser Arg Gly Cys Ser Tyr Thr Cys Ala
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aag aag atc cag gtg ccg gac tgc tgc cct ggt ttc ttt ggc acg ctg    2914
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tgt gag cca tgc cca ggg ggt cta ggg ggg gtg tgc tca ggc cat ggg    2962
Cys Glu Pro Cys Pro Gly Gly Leu Gly Gly Val Cys Ser Gly His Gly
                920             925             930

cag tgc cag gac agg ttc ctg ggc agc ggg gag tgc cac tgc cac gag    3010
Gln Cys Gln Asp Arg Phe Leu Gly Ser Gly Glu Cys His Cys His Glu
                935             940             945

ggc ttc cat gga acg gcc tgt gag gtg tgt gag ctg ggc cgc tac ggg    3058
Gly Phe His Gly Thr Ala Cys Glu Val Cys Glu Leu Gly Arg Tyr Gly
        950             955             960

ccc aac tgc acc gga gtg tgt gac tgt gcc cat ggg ctg tgc cag gag    3106
Pro Asn Cys Thr Gly Val Cys Asp Cys Ala His Gly Leu Cys Gln Glu
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Gly Leu Gln Gly Asp Gly Ser Cys Val Cys Asn Val Gly Trp Gln Gly
980             985             990             995

ctc cgc tgt gac cag aaa atc acc agc cct cag tgc cct agg aag tgc    3202
Leu Arg Cys Asp Gln Lys Ile Thr Ser Pro Gln Cys Pro Arg Lys Cys
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gac ccc aat gcc aac tgc gtg cag gac tcg gcc gga gcc tcc acc tgc    3250
Asp Pro Asn Ala Asn Cys Val Gln Asp Ser Ala Gly Ala Ser Thr Cys
            1015            1020            1025

gcc tgt gct gcg gga tac tcc ggc aat ggc atc ttc tgt tca gag gtg    3298
Ala Cys Ala Ala Gly Tyr Ser Gly Asn Gly Ile Phe Cys Ser Glu Val
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Met Gly Asp Gly Glu Leu Cys Gln Glu Ile Asn Ser Cys Leu Ile His
               1080                1085                1090


cac ggg ggc tgc cac att cac gcc gag tgc atc ccc act ggc ccc cag   3490
His Gly Gly Cys His Ile His Ala Glu Cys Ile Pro Thr Gly Pro Gln
            1095                1100                1105


cag gtc tcc tgc agc tgc cgt gag ggt tac agc ggg gat ggc atc cgg   3538
Gln Val Ser Cys Ser Cys Arg Glu Gly Tyr Ser Gly Asp Gly Ile Arg
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acc tgc gag ctc ctg gac ccc tgc tct aag aac aat gga gga tgc agc   3586
Thr Cys Glu Leu Leu Asp Pro Cys Ser Lys Asn Asn Gly Gly Cys Ser
      1125                1130                1135


cca tat gcc acc tgc aaa agc aca ggg gat ggc cag agg aca tgt acc   3634
Pro Tyr Ala Thr Cys Lys Ser Thr Gly Asp Gly Gln Arg Thr Cys Thr
1140                1145                1150                1155


tgc gac aca gcc cac acc gtg ggg gac ggc ctc acc tgc cgt gcc cga   3682
Cys Asp Thr Ala His Thr Val Gly Asp Gly Leu Thr Cys Arg Ala Arg
               1160                1165                1170


gtc ggc ctg gag ctc ctg agg gat aag cat gcc tca ttc ttc agc ctc   3730
Val Gly Leu Glu Leu Leu Arg Asp Lys His Ala Ser Phe Phe Ser Leu
            1175                1180                1185


cgc ctc ctg gaa tat aag gag ctc aag ggc gat ggg cct ttc acc atc   3778
Arg Leu Leu Glu Tyr Lys Glu Leu Lys Gly Asp Gly Pro Phe Thr Ile
         1190                1195                1200


ttc gtg ccg cac gca gat cta atg agc aac ctg tcg cag gat gag ctg   3826
Phe Val Pro His Ala Asp Leu Met Ser Asn Leu Ser Gln Asp Glu Leu
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gcc cgg att cgt gcg cat cgc cag ctg gtg ttt cgc tac cac gtg gtt    3874
Ala Arg Ile Arg Ala His Arg Gln Leu Val Phe Arg Tyr His Val Val
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ggc tgt cgg cgg ctg cgg agc gag gac ctg ctg gag cag ggg tac gcc    3922
Gly Cys Arg Arg Leu Arg Ser Glu Asp Leu Leu Glu Gln Gly Tyr Ala
            1240              1245          1250

acg gcc ctc tca ggg cac cca ctg cgc ttc agc gag agg gag ggc agc    3970
Thr Ala Leu Ser Gly His Pro Leu Arg Phe Ser Glu Arg Glu Gly Ser
            1255              1260          1265

ata tac ctc aat gac ttc gcg cgc gtg gtg agc agc gac cat gag gcc    4018
Ile Tyr Leu Asn Asp Phe Ala Arg Val Val Ser Ser Asp His Glu Ala
            1270              1275          1280

gtg aac ggc atc ctg cac ttc att gac cgt gtc ctg ctg ccc ccc gag    4066
Val Asn Gly Ile Leu His Phe Ile Asp Arg Val Leu Leu Pro Pro Glu
1285              1290          1295

gcg ctg cac tgg gag cct gat gat gct ccc atc ccg agg aga aat gtc    4114
Ala Leu His Trp Glu Pro Asp Asp Ala Pro Ile Pro Arg Arg Asn Val
1300              1305          1310          1315

acc gcc gcc gcc cag ggc ttc ggt tac aag atc ttc agc ggc ctc ctg    4162
Thr Ala Ala Ala Gln Gly Phe Gly Tyr Lys Ile Phe Ser Gly Leu Leu
            1320              1325          1330

aag gtg gcc ggc ctc ctg ccc ctg ctt cga gag gca tcc cat agg ccc    4210
Lys Val Ala Gly Leu Leu Pro Leu Leu Arg Glu Ala Ser His Arg Pro
            1335              1340          1345

ttc aca atg ctg tgg ccc aca gac gcc gcc ttt cga gct ctg cct ccg    4258
Phe Thr Met Leu Trp Pro Thr Asp Ala Ala Phe Arg Ala Leu Pro Pro
            1350              1355          1360

gat cgc cag gcc tgg ctg tac cat gag gac cac cgt gac aag cta gca    4306
Asp Arg Gln Ala Trp Leu Tyr His Glu Asp His Arg Asp Lys Leu Ala
1365              1370          1375
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```
gcc att ctg cgg ggc cac atg att cgc aat gtc gag gcc ttg gca tct    4354
Ala Ile Leu Arg Gly His Met Ile Arg Asn Val Glu Ala Leu Ala Ser
1380                1385                1390                1395

gac ctg ccc aac ctg ggc cca ctt cga acc atg cat ggg acc ccc atc    4402
Asp Leu Pro Asn Leu Gly Pro Leu Arg Thr Met His Gly Thr Pro Ile
               1400                1405                1410

tct ttc tcc tgc agc cga acg cgg ccc ggt gag ctc atg gtg ggt gag    4450
Ser Phe Ser Cys Ser Arg Thr Arg Pro Gly Glu Leu Met Val Gly Glu
               1415                1420                1425

gat gat gct cgc att gtg cag cgg cac ttg ccc ttt gag ggt ggc ctg    4498
Asp Asp Ala Arg Ile Val Gln Arg His Leu Pro Phe Glu Gly Gly Leu
          1430                1435                1440

gcc tat ggc atc gac cag ctg ctg gag cca cct ggc ctt ggt gct cgc    4546
Ala Tyr Gly Ile Asp Gln Leu Leu Glu Pro Pro Gly Leu Gly Ala Arg
     1445                1450                1455

tgt gac cac ttt gag acc cgg ccc ctg cga ctg aac acc tgc agc atc    4594
Cys Asp His Phe Glu Thr Arg Pro Leu Arg Leu Asn Thr Cys Ser Ile
1460                1465                1470                1475

tgt ggg ctg gag cca ccc tgt cct gag ggg tca cag gag cag ggc agc    4642
Cys Gly Leu Glu Pro Pro Cys Pro Glu Gly Ser Gln Glu Gln Gly Ser
               1480                1485                1490

cct gag gcc tgc tgg cgc ttc tac ccg aag ttc tgg acg tcc cct ccg    4690
Pro Glu Ala Cys Trp Arg Phe Tyr Pro Lys Phe Trp Thr Ser Pro Pro
               1495                1500                1505

ctg cac tct ttg gga tta cgc agc gtc tgg gtc cac ccc agc ctt tgg    4738
Leu His Ser Leu Gly Leu Arg Ser Val Trp Val His Pro Ser Leu Trp
          1510                1515                1520

ggt agg ccc caa ggc ctg ggc agg ggc tgc cac cgc aat tgt gtc acc    4786
Gly Arg Pro Gln Gly Leu Gly Arg Gly Cys His Arg Asn Cys Val Thr
     1525                1530                1535
```

```
acc acc tgg aag ccc agc tgc tgc cct ggt cac tat ggc agt gag tgc    4834
Thr Thr Trp Lys Pro Ser Cys Cys Pro Gly His Tyr Gly Ser Glu Cys
1540            1545            1550            1555

caa gct tgc cct ggc ggc ccc agc agc cct tgt agt gac cgt ggc gtg    4882
Gln Ala Cys Pro Gly Gly Pro Ser Ser Pro Cys Ser Asp Arg Gly Val
            1560            1565            1570

tgc atg gac ggc atg agt ggc agt ggg cag tgt ctg tgc cgt tca ggt    4930
Cys Met Asp Gly Met Ser Gly Ser Gly Gln Cys Leu Cys Arg Ser Gly
            1575            1580            1585

ttt gct ggg aca gcc tgt gaa ctc tgt gct cct ggt gcc ttt ggg ccc    4978
Phe Ala Gly Thr Ala Cys Glu Leu Cys Ala Pro Gly Ala Phe Gly Pro
        1590            1595            1600

cat tgt caa gcc tgc cgc tgc act gtg cat ggc cgc tgt gat gag ggc    5026·
His Cys Gln Ala Cys Arg Cys Thr Val His Gly Arg Cys Asp Glu Gly
        1605            1610            1615

ctt ggg ggc tct ggc tcc tgc ttc tgt gat gaa ggc tgg act ggg cca    5074
Leu Gly Gly Ser Gly Ser Cys Phe Cys Asp Glu Gly Trp Thr Gly Pro
1620            1625            1630            1635

cgc tgt gag gtg caa ctg gag ctg cag cct gtg tgt acc cca ccc tgt    5122
Arg Cys Glu Val Gln Leu Glu Leu Gln Pro Val Cys Thr Pro Pro Cys
            1640            1645            1650

gca ccc gag gct gtg tgc cgt gca ggc aac agc tgt gag tgc agc ctg    5170
Ala Pro Glu Ala Val Cys Arg Ala Gly Asn Ser Cys Glu Cys Ser Leu
            1655            1660            1665

ggc tat gaa ggg gat ggc cgt gtg tgt aca gtg gca gac ctg tgc cag    5218
Gly Tyr Glu Gly Asp Gly Arg Val Cys Thr Val Ala Asp Leu Cys Gln
        1670            1675            1680

gac ggg cat ggt ggc tgc agt gag cac gcc aac tgt agc cag gta gga    5266
Asp Gly His Gly Gly Cys Ser Glu His Ala Asn Cys Ser Gln Val Gly
        1685            1690            1695
```

```
aca atg gtc act tgt acc tgc ctg ccc gac tac gag ggt gat ggc tgg    5314
Thr Met Val Thr Cys Thr Cys Leu Pro Asp Tyr Glu Gly Asp Gly Trp
1700                  1705                  1710                  1715

agc tgc cgg gcc cgc aac ccc tgc aca gat ggc cac cgc ggg ggc tgc    5362
Ser Cys Arg Ala Arg Asn Pro Cys Thr Asp Gly His Arg Gly Gly Cys
             1720                  1725                  1730

agc gag cac gcc aac tgc ttg agc acc ggc ctg aac aca cgg cgc tgt    5410
Ser Glu His Ala Asn Cys Leu Ser Thr Gly Leu Asn Thr Arg Arg Cys
             1735                  1740                  1745

gag tgc cac gca ggc tac gta ggc gat gga ctg cag tgt ctg gag gag    5458
Glu Cys His Ala Gly Tyr Val Gly Asp Gly Leu Gln Cys Leu Glu Glu
             1750                  1755                  1760

tcg gaa cca cct gtg gac cgc tgc ttg ggc cag cca ccg ccc tgc cac    5506
Ser Glu Pro Pro Val Asp Arg Cys Leu Gly Gln Pro Pro Pro Cys His
       1765                  1770                  1775

tca gat gcc atg tgc act gac ctg cac ttc cag gag aaa cgg gct ggc    5554
Ser Asp Ala Met Cys Thr Asp Leu His Phe Gln Glu Lys Arg Ala Gly
1780                  1785                  1790                  1795

gtt ttc cac ctc cag gcc acc agc ggc cct tat ggt ctg aac ttt tcg    5602
Val Phe His Leu Gln Ala Thr Ser Gly Pro Tyr Gly Leu Asn Phe Ser
                  1800                  1805                  1810

gag gct gag gcg gca tgc gaa gca cag gga gcc gtc ctt gct tca ttc    5650
Glu Ala Glu Ala Ala Cys Glu Ala Gln Gly Ala Val Leu Ala Ser Phe
             1815                  1820                  1825

cct cag ctc tct gct gcc cag cag ctg ggc ttc cac ctg tgc ctc atg    5698
Pro Gln Leu Ser Ala Ala Gln Gln Leu Gly Phe His Leu Cys Leu Met
       1830                  1835                  1840

ggc tgg ctg gcc aat ggc tcc act gcc cac cct gtg gtt ttc cct gtg    5746
Gly Trp Leu Ala Asn Gly Ser Thr Ala His Pro Val Val Phe Pro Val
    1845                  1850                  1855
```

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gcg gac tgt ggc aat ggt cgg gtg ggc ata gtc agc ctg ggt gcc cgc    5794
Ala Asp Cys Gly Asn Gly Arg Val Gly Ile Val Ser Leu Gly Ala Arg
1860           1865             1870                 1875

aag aac ctc tca gaa cgc tgg gat gcc tac tgc ttc cgt gtg caa gat    5842
Lys Asn Leu Ser Glu Arg Trp Asp Ala Tyr Cys Phe Arg Val Gln Asp
               1880             1885             1890

gtg gcc tgc cga tgc cga aat ggc ttc gtg ggt gac ggg atc agc acg    5890
Val Ala Cys Arg Cys Arg Asn Gly Phe Val Gly Asp Gly Ile Ser Thr
           1895             1900             1905

tgc aat ggg aag ctg ctg gat gtg ctg gct gcc act gcc aac ttc tcc    5938
Cys Asn Gly Lys Leu Leu Asp Val Leu Ala Ala Thr Ala Asn Phe Ser
           1910             1915             1920

acc ttc tat ggg atg cta ttg ggc tat gcc aat gcc acc cag cgg ggt    5986
Thr Phe Tyr Gly Met Leu Leu Gly Tyr Ala Asn Ala Thr Gln Arg Gly
    1925             1930             1935

ctc gac ttc ctg gac ttc ctg gat gat gag ctc acg tat aag aca ctc    6034
Leu Asp Phe Leu Asp Phe Leu Asp Asp Glu Leu Thr Tyr Lys Thr Leu
1940             1945             1950             1955

ttc gtc cct gtc aat gaa ggc ttt gtg gac aac atg acg ctg agt ggc    6082
Phe Val Pro Val Asn Glu Gly Phe Val Asp Asn Met Thr Leu Ser Gly
               1960             1965             1970

cca aac ttg gag ctg cat gcc tcc aac gcc acc ctc cta agt gcc aac    6130
Pro Asn Leu Glu Leu His Ala Ser Asn Ala Thr Leu Leu Ser Ala Asn
           1975             1980             1985

gcc agc cag ggg aag ttg ctt ccg gcc cac tca ggc ctc agc ctc atc    6178
Ala Ser Gln Gly Lys Leu Leu Pro Ala His Ser Gly Leu Ser Leu Ile
           1990             1995             2000

atc agt gac gca ggc cct gac aac agt tcc tgg gcc cct gtg gcc cca    6226
Ile Ser Asp Ala Gly Pro Asp Asn Ser Ser Trp Ala Pro Val Ala Pro
    2005             2010             2015
```

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ggg aca gtt gtg gtt agc cgt atc att gtg tgg gac atc atg gcc ttc    6274
Gly Thr Val Val Val Ser Arg Ile Ile Val Trp Asp Ile Met Ala Phe
2020            2025              2030              2035

aat ggc atc atc cat gct ctg gcc agc ccc ctc ctg gca ccc cca cag    6322
Asn Gly Ile Ile His Ala Leu Ala Ser Pro Leu Leu Ala Pro Pro Gln
            2040              2045              2050

ccc cag gca gtg ctg gcg cnt gaa gcc cca cct gtg gcg gca ggc gtg    6370
Pro Gln Ala Val Leu Ala Xaa Glu Ala Pro Pro Val Ala Ala Gly Val
            2055              2060              2065

ggg gct gtg ctt gcc gct gga gca ctg ctt ggc ttg gtg gcc gga gct    6418
Gly Ala Val Leu Ala Ala Gly Ala Leu Leu Gly Leu Val Ala Gly Ala
            2070              2075              2080

ctc tac ctc cgt gcc cga ggc aag ccc atg ggc ttt ggc ttc tct gcc    6466
Leu Tyr Leu Arg Ala Arg Gly Lys Pro Met Gly Phe Gly Phe Ser Ala
    2085              2090              2095

ttc cag gcg gaa gat gat gct gat gac gan ttc tca ccg tgg caa gaa    6514
Phe Gln Ala Glu Asp Asp Ala Asp Asp Xaa Phe Ser Pro Trp Gln Glu
2100            2105              2110              2115

ggg acc aac ccc acn ttg gtn tnt gtc ccc aac cct gtc ttt ggc agc    6562
Gly Thr Asn Pro Xaa Leu Xaa Xaa Val Pro Asn Pro Val Phe Gly Ser
            2120              2125              2130

gac acc ttt tgt gaa ccc ttc gat gac tca ctg ctg gag gag gac ttc    6610
Asp Thr Phe Cys Glu Pro Phe Asp Asp Ser Leu Leu Glu Glu Asp Phe
            2135              2140              2145

cct gac acc cag agg atc ctc aca gtc aag tga cgaggctggg gctgaaagca  6663
Pro Asp Thr Gln Arg Ile Leu Thr Val Lys
            2150              2155

gaagcatgca cagggaggag accantttta ttgcttgtct gggtggatgg ggcaggaggg  6723

nctgagggcc tgtcccagac aatannngtn ccctcgag                          6761
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 1               5                  10                  15

Thr Val Leu Val Pro Ser Val Ser Ser Phe Ser Ser Arg Thr Met Asn
            20                  25                  30

Ala Ser Leu Ala Gln Gln Leu Cys Arg Gln His Ile Ile Ala Gly Gln
        35                  40                  45

His Ile Leu Glu Asp Thr Arg Thr Gln Gln Thr Arg Arg Trp Trp Thr
     50                  55                  60
```

Leu Ala Gly Gln Glu Ile Thr Val Thr Phe Asn Gln Phe Thr Lys Tyr
65   70   75   80

Ser Tyr Lys Tyr Lys Asp Gln Pro Gln Gln Thr Phe Asn Ile Tyr Lys
              85   90   95

Ala Asn Asn Ile Ala Ala Asn Gly Val Phe His Val Val Thr Gly Leu
          100   105   110

Arg Trp Gln Ala Pro Ser Gly Thr Pro Gly Asp Pro Lys Arg Thr Ile
          115   120   125

Gly Gln Ile Leu Ala Ser Thr Glu Ala Phe Ser Arg Phe Glu Thr Ile
    130   135   140

Leu Glu Asn Cys Gly Leu Pro Ser Ile Leu Asp Gly Pro Gly Pro Phe
145   150   155   160

Thr Val Phe Ala Pro Ser Asn Glu Ala Val Asp Ser Leu Arg Asp Gly
              165   170   175

Arg Leu Ile Tyr Leu Phe Thr Ala Gly Leu Ser Lys Leu Gln Glu Leu
          180   185   190

Val Arg Tyr His Ile Tyr Asn His Gly Gln Leu Thr Val Glu Lys Leu
    195   200   205

Ile Ser Lys Gly Arg Ile Leu Thr Met Ala Asn Gln Val Leu Ala Val
    210   215   220

Asn Ile Ser Glu Glu Gly Arg Ile Leu Leu Gly Pro Glu Gly Val Pro
225   230   235   240

Leu Gln Arg Val Asp Val Met Ala Ala Asn Gly Val Ile His Met Leu
              245   250   255

Asp Gly Ile Leu Leu Pro Pro Thr Ile Leu Pro Ile Leu Pro Lys His
          260   265   270

Cys Ser Glu Glu Gln His Lys Ile Val Ala Gly Ser Cys Val Asp Cys
    275   280   285

```
Gln Ala Leu Asn Thr Ser Thr Cys Pro Pro Asn Ser Val Lys Leu Asp
    290             295             300

Ile Phe Pro Lys Glu Cys Val Tyr Ile His Asp Pro Thr Gly Leu Asn
305             310             315                 320

Val Leu Lys Lys Gly Cys Ala Ser Tyr Cys Asn Gln Thr Ile Met Glu
            325             330                 335

Gln Gly Cys Cys Lys Gly Phe Phe Gly Pro Asp Cys Thr Gln Cys Pro
            340             345             350

Gly Gly Phe Ser Asn Pro Cys Tyr Gly Lys Gly Asn Cys Ser Asp Gly
            355             360             365

Ile Gln Gly Asn Gly Ala Cys Leu Cys Phe Pro Asp Tyr Lys Gly Ile
    370             375             380

Ala Cys His Ile Cys Ser Asn Pro Asn Lys His Gly Glu Gln Cys Gln
385             390             395                 400

Glu Asp Cys Gly Cys Val His Gly Leu Cys Asp Asn Arg Pro Gly Ser
            405             410             415

Gly Gly Val Cys Gln Gln Gly Thr Cys Ala Pro Gly Phe Ser Gly Arg
            420             425             430

Phe Cys Asn Glu Ser Met Gly Asp Cys Gly Pro Thr Gly Leu Ala Gln
    435             440             445

His Cys His Leu His Ala Arg Cys Val Ser Gln Glu Gly Val Ala Arg
    450             455             460

Cys Arg Cys Leu Asp Gly Phe Glu Gly Asp Gly Phe Ser Cys Thr Pro
465             470             475                 480

Ser Asn Pro Cys Ser His Pro Asp Arg Gly Gly Cys Ser Glu Asn Ala
            485             490             495

Glu Cys Val Pro Gly Ser Leu Gly Thr His His Cys Thr Cys His Lys
            500             505             510
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```
Gly Trp Ser Gly Asp Gly Arg Val Cys Val Ala Ile Asp Glu Cys Glu
        515             520             525

Leu Asp Val Arg Gly Gly Cys His Thr Asp Ala Leu Cys Ser Tyr Val
    530             535             540

Gly Pro Gly Gln Ser Arg Cys Thr Cys Lys Leu Gly Phe Ala Gly Asp
545             550             555             560

Gly Tyr Gln Cys Ser Pro Ile Asp Pro Cys Arg Ala Gly Asn Gly Gly
            565             570             575

Cys His Gly Leu Glu Leu Glu Ala Asn Ala His Phe Ser Ile Phe Tyr
        580             585             590

Gln Trp Leu Lys Ser Ala Gly Ile Thr Leu Pro Ala Asp Arg Arg Val
    595             600             605

Thr Ala Leu Val Pro Ser Glu Ala Ala Val Arg Gln Leu Ser Pro Glu
    610             615             620

Asp Arg Ala Phe Trp Leu Gln Pro Arg Thr Leu Pro Asn Leu Val Arg
625             630             635             640

Ala His Phe Leu Gln Gly Ala Leu Phe Glu Glu Glu Leu Ala Arg Leu
            645             650             655

Gly Gly Gln Glu Val Ala Thr Leu Asn Pro Thr Thr Arg Trp Glu Ile
            660             665             670

Arg Asn Ile Ser Gly Arg Val Trp Val Gln Asn Ala Ser Val Asp Val
    675             680             685

Ala Asp Leu Leu Ala Thr Asn Gly Val Leu His Ile Leu Ser Gln Val
    690             695             700

Leu Leu Pro Pro Arg Gly Asp Val Pro Gly Gly Gln Gly Leu Leu Gln
705             710             715             720

Gln Leu Asp Leu Val Pro Ala Phe Ser Leu Phe Arg Glu Leu Leu Gln
            725             730             735
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His His Gly Leu Val Pro Gln Ile Glu Ala Ala Thr Ala Tyr Thr Ile
          740   745   750

Phe Val Pro Thr Asn Arg Ser Leu Glu Ala Gln Gly Asn Ser Ser His
          755   760   765

Leu Asp Ala Asp Thr Val Arg His His Val Val Leu Gly Glu Ala Leu
    770   775   780

Ser Met Glu Thr Leu Arg Lys Gly Gly His Arg Asn Ser Leu Leu Gly
785   790   795   800

Pro Ala His Trp Ile Val Phe Tyr Asn His Ser Gly Gln Pro Glu Val
          805   810   815

Asn His Val Pro Leu Glu Gly Pro Met Leu Glu Ala Pro Gly Arg Ser
          820   825   830

Leu Ile Gly Leu Ser Gly Val Leu Thr Val Gly Ser Ser Arg Cys Leu
          835   840   845

His Ser His Ala Glu Ala Leu Arg Glu Lys Cys Val Asn Cys Thr Arg
850   855   860

Arg Phe Arg Cys Thr Gln Gly Phe Gln Leu Gln Asp Thr Pro Arg Lys
865   870   875   880

Ser Cys Val Tyr Arg Ser Gly Phe Ser Phe Ser Arg Gly Cys Ser Tyr
          885   890   895

Thr Cys Ala Lys Lys Ile Gln Val Pro Asp Cys Cys Pro Gly Phe Phe
          900   905   910

Gly Thr Leu Cys Glu Pro Cys Pro Gly Gly Leu Gly Gly Val Cys Ser
          915   920   925

Gly His Gly Gln Cys Gln Asp Arg Phe Leu Gly Ser Gly Glu Cys His
          930   935   940

Cys His Glu Gly Phe His Gly Thr Ala Cys Glu Val Cys Glu Leu Gly
945   950   955   960

Arg Tyr Gly Pro Asn Cys Thr Gly Val Cys Asp Cys Ala His Gly Leu
              965   970   975

Cys Gln Glu Gly Leu Gln Gly Asp Gly Ser Cys Val Cys Asn Val Gly
              980   985   990

Trp Gln Gly Leu Arg Cys Asp Gln Lys Ile Thr Ser Pro Gln Cys Pro
          995   1000   1005

Arg Lys Cys Asp Pro Asn Ala Asn Cys Val Gln Asp Ser Ala Gly Ala
      1010   1015   1020

Ser Thr Cys Ala Cys Ala Ala Gly Tyr Ser Gly Asn Gly Ile Phe Cys
1025   1030   1035   1040

Ser Glu Val Asp Pro Cys Ala His Gly His Gly Gly Cys Ser Pro His
              1045   1050   1055

Ala Asn Cys Thr Lys Val Ala Pro Gly Gln Arg Thr Cys Thr Cys Gln
              1060   1065   1070

Asp Gly Tyr Met Gly Asp Gly Glu Leu Cys Gln Glu Ile Asn Ser Cys
          1075   1080   1085

Leu Ile His His Gly Gly Cys His Ile His Ala Glu Cys Ile Pro Thr
      1090   1095   1100

Gly Pro Gln Gln Val Ser Cys Ser Cys Arg Glu Gly Tyr Ser Gly Asp
1105   1110   1115   1120

Gly Ile Arg Thr Cys Glu Leu Leu Asp Pro Cys Ser Lys Asn Asn Gly
              1125   1130   1135

Gly Cys Ser Pro Tyr Ala Thr Cys Lys Ser Thr Gly Asp Gly Gln Arg
              1140   1145   1150

Thr Cys Thr Cys Asp Thr Ala His Thr Val Gly Asp Gly Leu Thr Cys
          1155   1160   1165

Arg Ala Arg Val Gly Leu Glu Leu Leu Arg Asp Lys His Ala Ser Phe
      1170   1175   1180

```
Phe   Ser Leu Arg Leu  Leu   Glu Tyr Lys Glu  Leu   Lys Gly Asp Gly  Pro
1185                    1190                    1195                    1200

Phe Thr Ile Phe Val   Pro His Ala Asp Leu   Met Ser Asn Leu Ser   Gln
            1205               1210                       1215

Asp Glu Leu Ala   Arg Ile Arg Ala His   Arg Gln Leu Val Phe   Arg Tyr
            1220               1225                   1230

His Val Val   Gly Cys Arg Arg Leu   Arg Ser Glu Asp Leu   Leu Glu Gln
            1235               1240                   1245

Gly Tyr   Ala Thr Ala Leu Ser   Gly His Pro Leu Arg   Phe Ser Glu Arg
    1250               1255               1260

Glu   Gly Ser Ile Tyr Leu   Asn Asp Phe Ala Arg   Val Val Ser Ser  Asp
1265                   1270               1275                      1280

His Glu Ala Val Asn   Gly Ile Leu His Phe   Ile Asp Arg Val Leu   Leu
            1285               1290                       1295

Pro Pro Glu Ala   Leu His Trp Glu Pro   Asp Asp Ala Pro Ile   Pro Arg
            1300               1305               1310

Arg Asn Val   Thr Ala Ala Ala Gln   Gly Phe Gly Tyr Lys   Ile Phe Ser
            1315               1320               1325

Gly Leu   Leu Lys Val Ala Gly   Leu Leu Pro Leu Leu   Arg Glu Ala Ser
    1330               1335               1340

His   Arg Pro Phe Thr Met   Leu Trp Pro Thr Asp   Ala Ala Phe Arg Ala
1345                   1350               1355                   1360

Leu Pro Pro Asp Arg   Gln Ala Trp Leu Tyr   His Glu Asp His Arg   Asp
            1365               1370                   1375

Lys Leu Ala Ala   Ile Leu Arg Gly His   Met Ile Arg Asn Val   Glu Ala
            1380               1385               1390

Leu Ala Ser   Asp Leu Pro Asn Leu   Gly Pro Leu Arg Thr   Met His Gly
    1395               1400               1405
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Thr Pro   Ile Ser Phe Ser Cys   Ser Arg Thr Arg Pro   Gly Glu Leu Met
    1410   1415   1420

Val   Gly Glu Asp Asp Ala   Arg Ile Val Gln Arg   His Leu Pro Phe Glu
1425   1430   1435   1440

Gly Gly Leu Ala Tyr Gly Ile Asp Gln Leu Leu Glu Pro Pro Gly Leu
                1445   1450   1455

Gly Ala Arg Cys   Asp His Phe Glu Thr Arg Pro Leu Arg Leu   Asn Thr
            1460   1465   1470

Cys Ser Ile   Cys Gly Leu Glu Pro   Pro Cys Pro Glu Gly   Ser Gln Glu
          1475   1480   1485

Gln Gly   Ser Pro Glu Ala Cys   Trp Arg Phe Tyr Pro   Lys Phe Trp Thr
    1490   1495   1500

Ser   Pro Pro Leu His Ser   Leu Gly Leu Arg Ser   Val Trp Val His Pro
1505   1510   1515   1520

Ser Leu Trp Gly Arg   Pro Gln Gly Leu Gly   Arg Gly Cys His Arg   Asn
                1525   1530   1535

Cys Val Thr Thr   Thr Trp Lys Pro Ser   Cys Cys Pro Gly His   Tyr Gly
            1540   1545   1550

Ser Glu Cys   Gln Ala Cys Pro Gly   Gly Pro Ser Ser Pro   Cys Ser Asp
          1555   1560   1565

Arg Gly   Val Cys Met Asp Gly   Met Ser Gly Ser Gly   Gln Cys Leu Cys
    1570   1575   1580

Arg   Ser Gly Phe Ala Gly   Thr Ala Cys Glu Leu   Cys Ala Pro Gly Ala
1585   1590   1595   1600

Phe Gly Pro His Cys   Gln Ala Cys Arg Cys   Thr Val His Gly Arg   Cys
                1605   1610   1615

Asp Glu Gly Leu   Gly Gly Ser Gly Ser   Cys Phe Cys Asp Glu   Gly Trp
            1620   1625   1630

Thr Gly Pro Arg Cys Glu Val Gln Leu Glu Leu Gln Pro Val Cys Thr
         1635   1640   1645

Pro Pro Cys Ala Pro Glu Ala Val Cys Arg Ala Gly Asn Ser Cys Glu
     1650   1655   1660

Cys Ser Leu Gly Tyr Glu Gly Asp Gly Arg Val Cys Thr Val Ala Asp
1665   1670   1675   1680

Leu Cys Gln Asp Gly His Gly Gly Cys Ser Glu His Ala Asn Cys Ser
              1685   1690   1695

Gln Val Gly Thr Met Val Thr Cys Thr Cys Leu Pro Asp Tyr Glu Gly
              1700   1705   1710

Asp Gly Trp Ser Cys Arg Ala Arg Asn Pro Cys Thr Asp Gly His Arg
         1715   1720   1725

Gly Gly Cys Ser Glu His Ala Asn Cys Leu Ser Thr Gly Leu Asn Thr
     1730   1735   1740

Arg Arg Cys Glu Cys His Ala Gly Tyr Val Gly Asp Gly Leu Gln Cys
1745   1750   1755   1760

Leu Glu Glu Ser Glu Pro Pro Val Asp Arg Cys Leu Gly Gln Pro Pro
              1765   1770   1775

Pro Cys His Ser Asp Ala Met Cys Thr Asp Leu His Phe Gln Glu Lys
         1780   1785   1790

Arg Ala Gly Val Phe His Leu Gln Ala Thr Ser Gly Pro Tyr Gly Leu
         1795   1800   1805

Asn Phe Ser Glu Ala Glu Ala Ala Cys Glu Ala Gln Gly Ala Val Leu
     1810   1815   1820

Ala Ser Phe Pro Gln Leu Ser Ala Ala Gln Gln Leu Gly Phe His Leu
1825   1830   1835   1840

Cys Leu Met Gly Trp Leu Ala Asn Gly Ser Thr Ala His Pro Val Val
              1845   1850   1855

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Phe Pro Val Ala  Asp Cys Gly Asn Gly  Arg Val Gly Ile Val  Ser Leu
          1860              1865              1870

Gly Ala Arg  Lys Asn Leu Ser Glu  Arg Trp Asp Ala Tyr  Cys Phe Arg
        1875              1880              1885

Val Gln  Asp Val Ala Cys Arg  Cys Arg Asn Gly Phe  Val Gly Asp Gly
    1890              1895              1900

Ile  Ser Thr Cys Asn Gly  Lys Leu Leu Asp Val  Leu Ala Ala Thr Ala
1905              1910              1915              1920

Asn Phe Ser Thr Phe  Tyr Gly Met Leu Leu  Gly Tyr Ala Asn Ala  Thr
            1925              1930              1935

Gln Arg Gly Leu  Asp Phe Leu Asp Phe  Leu Asp Asp Glu Leu  Thr Tyr
          1940              1945              1950

Lys Thr Leu  Phe Val Pro Val Asn  Glu Gly Phe Val Asp  Asn Met Thr
        1955              1960              1965

Leu Ser  Gly Pro Asn Leu Glu  Leu His Ala Ser Asn  Ala Thr Leu Leu
    1970              1975              1980

Ser  Ala Asn Ala Ser Gln  Gly Lys Leu Leu Pro  Ala His Ser Gly Leu
1985              1990              1995              2000

Ser Leu Ile Ile Ser  Asp Ala Gly Pro Asp  Asn Ser Ser Trp Ala  Pro
            2005              2010              2015

Val Ala Pro Gly  Thr Val Val Val Ser  Arg Ile Ile Val Trp  Asp Ile
          2020              2025              2030

Met Ala Phe  Asn Gly Ile Ile His  Ala Leu Ala Ser Pro  Leu Leu Ala
        2035              2040              2045

Pro Pro  Gln Pro Gln Ala Val  Leu Ala Xaa Glu Ala  Pro Pro Val Ala
    2050              2055              2060

Ala  Gly Val Gly Ala Val  Leu Ala Ala Gly Ala  Leu Leu Gly Leu Val
2065              2070              2075              2080
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Ala Gly Ala Leu Tyr Leu Arg Ala Arg Gly Lys Pro Met Gly Phe Gly
              2085   2090   2095

Phe Ser Ala Phe Gln Ala Glu Asp Asp Ala Asp Asp Xaa Phe Ser Pro
              2100   2105   2110

Trp Gln Glu Gly Thr Asn Pro Xaa Leu Xaa Xaa Val Pro Asn Pro Val
         2115   2120   2125

Phe Gly Ser Asp Thr Phe Cys Glu Pro Phe Asp Asp Ser Leu Leu Glu
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Glu Asp Phe Pro Asp Thr Gln Arg Ile Leu Thr Val Lys
2145   2150   2155

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             20   25   30

Ala Ala Lys Ala Val Cys Gly Gly His Ala Thr Tyr Lys Ala Ala Arg
         35   40   45

Lys Gly His Val Cys Ala Ala Gly Trp Met Ala Lys Gly Arg Val Gly
    50   55   60

Tyr Val Lys Gly Asn Cys Gly Gly Lys Thr Gly Asp Tyr Gly Arg Asn
 65   70   75   80

Arg Ser Arg Trp Asp Ala Tyr Cys Tyr Asn His Ala Lys Cys Gly Gly
             85   90   95

Val Thr Asp Lys Arg Lys Ser Gly Asn Tyr Asp Asn Cys Tyr Trp His
             100   105   110

Arg Lys Tyr Gly Arg His Ser Asp Asp Asp Asp Gly Cys Ala Asp Tyr
115   120   125

Val Tyr Asp Ser Tyr Asp Asp Val His Gly Val Gly Arg Tyr Cys Gly
130   135   140

Asp Asp Asp Ser Thr Gly Asn Val Met Thr Lys Ser Asp Ala Ser Val
145   150   155   160

Thr Ala Gly Gly Lys Tyr Val Ala Met Asp Val Ser Lys Ser Ser Gly
165   170   175

Lys Asn Thr Ser Thr Thr Ser Thr Gly Asn Lys Asn Ala Gly Arg Ser
180   185   190

His

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                                  Met Val Thr Cys Thr Cys Leu Pro
                                  1                 5
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gac tac gag ggt gat ggc tgg agc tgc cgg gcc cgc aac ccc tgc aca    102
Asp Tyr Glu Gly Asp Gly Trp Ser Cys Arg Ala Arg Asn Pro Cys Thr
     10                  15                  20

gat ggc cac cgc ggg ggc tgc agc gag cac gcc aac tgc ttg agc acc    150
Asp Gly His Arg Gly Gly Cys Ser Glu His Ala Asn Cys Leu Ser Thr
 25                  30                  35                  40

ggc ctg aac aca cgg cgc tgt gag tgc cac gca ggc tac gta ggc gat    198
Gly Leu Asn Thr Arg Arg Cys Glu Cys His Ala Gly Tyr Val Gly Asp
                 45                  50                  55

gga ctg cag tgt ctg gag gag tcg gaa cca cct gtg gac cgc tgc ttg    246
Gly Leu Gln Cys Leu Glu Glu Ser Glu Pro Pro Val Asp Arg Cys Leu
             60                  65                  70

ggc cag cca ccg ccc tgc cac tca gat gcc atg tgc act gac ctg cac    294
Gly Gln Pro Pro Pro Cys His Ser Asp Ala Met Cys Thr Asp Leu His
             75                  80                  85

ttc cag gag aaa cgg gct ggc gtt ttc cac ctc cag gcc acc agc ggc    342
Phe Gln Glu Lys Arg Ala Gly Val Phe His Leu Gln Ala Thr Ser Gly
     90                  95                  100

cct tat ggt ctg aac ttt tcg gag gct gag gcg gca tgc gaa gca cag    390
Pro Tyr Gly Leu Asn Phe Ser Glu Ala Glu Ala Ala Cys Glu Ala Gln
105                 110                 115                 120

gga gcc gtc ctt gct tca ttc cct cag ctc tct gct gcc cag cag ctg    438
Gly Ala Val Leu Ala Ser Phe Pro Gln Leu Ser Ala Ala Gln Gln Leu
                 125                 130                 135

ggc ttc cac ctg tgc ctc atg ggc tgg ctg gcc aat ggc tcc act gcc    486
Gly Phe His Leu Cys Leu Met Gly Trp Leu Ala Asn Gly Ser Thr Ala
                 140                 145                 150

cac cct gtg gtt ttc cct gtg gcg gac tgt ggc aat ggt cgg gtg ggc    534
His Pro Val Val Phe Pro Val Ala Asp Cys Gly Asn Gly Arg Val Gly
             155                 160                 165
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ata gtc agc ctg ggt gcc cgc aag aac ctc tca gaa cgc tgg gat gcc   582
Ile Val Ser Leu Gly Ala Arg Lys Asn Leu Ser Glu Arg Trp Asp Ala
    170             175             180

tac tgc ttc cgt gtg caa gat gtg gcc tgc cga tgc cga aat ggc ttc   630
Tyr Cys Phe Arg Val Gln Asp Val Ala Cys Arg Cys Arg Asn Gly Phe
185             190             195             200

gtg ggt gac ggg atc agc acg tgc aat ggg aag ctg ctg gat gtg ctg   678
Val Gly Asp Gly Ile Ser Thr Cys Asn Gly Lys Leu Leu Asp Val Leu
            205             210             215

gct gcc act gcc aac ttc tcc acc ttc tat ggg atg cta ttg ggc tat   726
Ala Ala Thr Ala Asn Phe Ser Thr Phe Tyr Gly Met Leu Leu Gly Tyr
        220             225             230

gcc aat gcc acc cag cgg ggt ctc gac ttc ctg gac ttc ctg gat gat   774
Ala Asn Ala Thr Gln Arg Gly Leu Asp Phe Leu Asp Phe Leu Asp Asp
        235             240             245

gag ctc acg tat aag aca ctc ttc gtc cct gtc aat gaa ggc ttt gtg   822
Glu Leu Thr Tyr Lys Thr Leu Phe Val Pro Val Asn Glu Gly Phe Val
    250             255             260

gac aac atg acg ctg agt ggc cca aac ttg gag ctg cat gcc tcc aac   870
Asp Asn Met Thr Leu Ser Gly Pro Asn Leu Glu Leu His Ala Ser Asn
265             270             275             280

gcc acc ctc cta agt gcc aac gcc agc cag ggg aag ttg ctt ccg gcc   918
Ala Thr Leu Leu Ser Ala Asn Ala Ser Gln Gly Lys Leu Leu Pro Ala
            285             290             295

cac tca ggc ctc agc ctc atc atc agt gac gca ggc cct gac aac agt   966
His Ser Gly Leu Ser Leu Ile Ile Ser Asp Ala Gly Pro Asp Asn Ser
            300             305             310

tcc tgg gcc cct gtg gcc cca ggg aca gtt gtg gtt agc cgt atc att  1014
Ser Trp Ala Pro Val Ala Pro Gly Thr Val Val Val Ser Arg Ile Ile
            315             320             325
```

```
gtg tgg gac atc atg gcc ttc aat ggc atc atc cat gct ctg gcc agc   1062
Val Trp Asp Ile Met Ala Phe Asn Gly Ile Ile His Ala Leu Ala Ser
    330               335               340

ccc ctc ctg gca ccc cca cag ccc cag gca gtg ctg gcg cnt gaa gcc   1110
Pro Leu Leu Ala Pro Pro Gln Pro Gln Ala Val Leu Ala Xaa Glu Ala
345               350               355               360

cca cct gtg gcg gca ggc gtg ggg gct gtg ctt gcc gct gga gca ctg   1158
Pro Pro Val Ala Ala Gly Val Gly Ala Val Leu Ala Ala Gly Ala Leu
                365               370               375

ctt ggc ttg gtg gcc gga gct ctc tac ctc cgt gcc cga ggc aag ccc   1206
Leu Gly Leu Val Ala Gly Ala Leu Tyr Leu Arg Ala Arg Gly Lys Pro
                380               385               390

atg ggc ttt ggc ttc tct gcc ttc cag gcg gaa gat gat gct gat gac   1254
Met Gly Phe Gly Phe Ser Ala Phe Gln Ala Glu Asp Asp Ala Asp Asp
            395               400               405

gan ttc tca ccg tgg caa gaa ggg acc aac ccc acn ttg gtn tnt gtc   1302
Xaa Phe Ser Pro Trp Gln Glu Gly Thr Asn Pro Xaa Leu Xaa Xaa Val
            410               415               420

ccc aac cct gtc ttt ggc agc gac acc ttt tgt gaa ccc ttc gat gac   1350
Pro Asn Pro Val Phe Gly Ser Asp Thr Phe Cys Glu Pro Phe Asp Asp
425               430               435               440

tca ctg ctg gag gag gac ttc cct gac acc cag agg atc ctc aca gtc   1398
Ser Leu Leu Glu Glu Asp Phe Pro Asp Thr Gln Arg Ile Leu Thr Val
                445               450               455

aag tga cgaggctggg gctgaaagca gaagcatgca cagggaggag accantttta   1454
Lys

ttgcttgtct gggtggatgg ggcaggaggg nctgagggcc tgtcccagac aatannngtn 1514

ccctcgag                                                          1522
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<210> 5
<211> 457
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<222> (423)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 5
Met Val Thr Cys Thr Cys Leu Pro Asp Tyr Glu Gly Asp Gly Trp Ser
1   5   10   15

Cys Arg Ala Arg Asn Pro Cys Thr Asp Gly His Arg Gly Gly Cys Ser
            20   25   30

Glu His Ala Asn Cys Leu Ser Thr Gly Leu Asn Thr Arg Arg Cys Glu
            35   40   45

Cys His Ala Gly Tyr Val Gly Asp Gly Leu Gln Cys Leu Glu Glu Ser
        50   55   60

```
Glu Pro Pro Val Asp Arg Cys Leu Gly Gln Pro Pro Pro Cys His Ser
65              70              75                          80

Asp Ala Met Cys Thr Asp Leu His Phe Gln Glu Lys Arg Ala Gly Val
            85              90                      95

Phe His Leu Gln Ala Thr Ser Gly Pro Tyr Gly Leu Asn Phe Ser Glu
            100             105             110

Ala Glu Ala Ala Cys Glu Ala Gln Gly Ala Val Leu Ala Ser Phe Pro
        115             120             125

Gln Leu Ser Ala Ala Gln Gln Leu Gly Phe His Leu Cys Leu Met Gly
    130             135             140

Trp Leu Ala Asn Gly Ser Thr Ala His Pro Val Val Phe Pro Val Ala
145             150             155             160

Asp Cys Gly Asn Gly Arg Val Gly Ile Val Ser Leu Gly Ala Arg Lys
            165             170             175

Asn Leu Ser Glu Arg Trp Asp Ala Tyr Cys Phe Arg Val Gln Asp Val
            180             185             190

Ala Cys Arg Cys Arg Asn Gly Phe Val Gly Asp Gly Ile Ser Thr Cys
        195             200             205

Asn Gly Lys Leu Leu Asp Val Leu Ala Ala Thr Ala Asn Phe Ser Thr
    210             215             220

Phe Tyr Gly Met Leu Leu Gly Tyr Ala Asn Ala Thr Gln Arg Gly Leu
225             230             235             240

Asp Phe Leu Asp Phe Leu Asp Asp Glu Leu Thr Tyr Lys Thr Leu Phe
            245             250             255

Val Pro Val Asn Glu Gly Phe Val Asp Asn Met Thr Leu Ser Gly Pro
            260             265             270

Asn Leu Glu Leu His Ala Ser Asn Ala Thr Leu Leu Ser Ala Asn Ala
    275             280             285
```

```
Ser Gln Gly Lys Leu Leu Pro Ala His Ser Gly Leu Ser Leu Ile Ile
    290             295             300

Ser Asp Ala Gly Pro Asp Asn Ser Ser Trp Ala Pro Val Ala Pro Gly
305             310             315             320

Thr Val Val Val Ser Arg Ile Ile Val Trp Asp Ile Met Ala Phe Asn
            325             330             335

Gly Ile Ile His Ala Leu Ala Ser Pro Leu Leu Ala Pro Pro Gln Pro
            340             345             350

Gln Ala Val Leu Ala Xaa Glu Ala Pro Pro Val Ala Ala Gly Val Gly
        355             360             365

Ala Val Leu Ala Ala Gly Ala Leu Leu Gly Leu Val Ala Gly Ala Leu
    370             375             380

Tyr Leu Arg Ala Arg Gly Lys Pro Met Gly Phe Gly Phe Ser Ala Phe
385             390             395             400

Gln Ala Glu Asp Asp Ala Asp Asp Xaa Phe Ser Pro Trp Gln Glu Gly
            405             410             415

Thr Asn Pro Xaa Leu Xaa Xaa Val Pro Asn Pro Val Phe Gly Ser Asp
            420             425             430

Thr Phe Cys Glu Pro Phe Asp Asp Ser Leu Leu Glu Glu Asp Phe Pro
        435             440             445

Asp Thr Gln Arg Ile Leu Thr Val Lys
    450             455
```

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<210> 6
<211> 193
<212> PRT
<213> Homo sapiens

<400> 6
Met Tyr Trp Asp Thr Gly Trp Gly Lys Asp Gly His Asn Ser Trp Arg
  1             5               10              15
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Ala Ala Gly Val Tyr His Arg Ala Arg Ser Gly Lys Tyr Lys Thr Tyr
                20   25   30

Ala Ala Lys Ala Val Cys Gly Gly His Ala Thr Tyr Lys Ala Ala Arg
            35   40   45

Lys Gly His Val Cys Ala Ala Gly Trp Met Ala Lys Gly Arg Val Gly
        50   55   60

Tyr Val Lys Gly Asn Cys Gly Gly Lys Thr Gly Asp Tyr Gly Arg Asn
65   70   75   80

Arg Ser Arg Trp Asp Ala Tyr Cys Tyr Asn His Ala Lys Cys Gly Gly
            85   90   95

Val Thr Asp Lys Arg Lys Ser Gly Asn Tyr Asp Asn Cys Tyr Trp His
            100   105   110

Arg Lys Tyr Gly Arg His Ser Asp Asp Asp Gly Cys Ala Asp Tyr
        115   120   125

Val Tyr Asp Ser Tyr Asp Asp Val His Gly Val Gly Arg Tyr Cys Gly
    130   135   140

Asp Asp Asp Ser Thr Gly Asn Val Met Thr Lys Ser Asp Ala Ser Val
145   150   155   160

Thr Ala Gly Gly Lys Tyr Val Ala Met Asp Val Ser Lys Ser Ser Gly
            165   170   175

Lys Asn Thr Ser Thr Thr Ser Thr Gly Asn Lys Asn Ala Gly Arg Ser
            180   185   190

His

<210> 7
<211> 985
<212> DNA
<213> Homo sapiens

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<220>
<221> CDS
<222> (118)..(984)

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<222> (248)
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<220>
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<222> (521)
<223> n equals a, t, g or c

<220>
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<222> (564)
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<220>
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<222> (933)
<223> n equals a, t, g or c
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<223> n equals a, t, g or c

<220>
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<222> (951)
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<220>
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<223> n equals a, t, g or c

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gcccacgcgt ccgaccggga cagctcgcgg cccccnagag ctctagccgt ngaggagctg 60

cctggggacg tttgccctgg ggccccagcc tggcccgggt caccctggca tgaggag   117

```
atg ggc ctg ttg ctc ctg gtc cca ttg ctc ctg ctg ccc ggc tcc tac   165
Met Gly Leu Leu Leu Leu Val Pro Leu Leu Leu Leu Pro Gly Ser Tyr
 1               5                  10                  15

gga ctg ccc ttc tac tac ggc ttc tac tac tcc aac agc gcc aac gac   213
Gly Leu Pro Phe Tyr Tyr Gly Phe Tyr Tyr Ser Asn Ser Ala Asn Asp
                20                  25                  30

cag aac cta ggc aac ggt cat ggc aaa gac cta cnt aat gga gtg aag   261
Gln Asn Leu Gly Asn Gly His Gly Lys Asp Leu Xaa Asn Gly Val Lys
            35                  40                  45

ctg gtg gtg gag aca ccc gag gag acc ctg ttc acc tac caa ggg gcc   309
Leu Val Val Glu Thr Pro Glu Glu Thr Leu Phe Thr Tyr Gln Gly Ala
        50                  55                  60

agt gtg atc ctg ccc tgc cgc tac cgc tac gag ccg gcc ctg gtc tcc   357
Ser Val Ile Leu Pro Cys Arg Tyr Arg Tyr Glu Pro Ala Leu Val Ser
 65                  70                  75                  80
```

```
ccg cgg cgt gtg cgt gtc aaa tgg tgg aag ctg tcg gag aac ggg gcc    405
Pro Arg Arg Val Arg Val Lys Trp Trp Lys Leu Ser Glu Asn Gly Ala
                85                  90                  95

cca gag aag gac gtg ctg gtg gcc atc ggg ctg agg cac cgc tcc ttt    453
Pro Glu Lys Asp Val Leu Val Ala Ile Gly Leu Arg His Arg Ser Phe
                100                 105                 110

ggg gac tac caa ggc cgc gtg cac ctg cgg cag gac aaa gag cat gac    501
Gly Asp Tyr Gln Gly Arg Val His Leu Arg Gln Asp Lys Glu His Asp
                115                 120                 125

gtc tcg ntg gag atc cag gnt ctg cgg ctg gag gac tat ggg cgt tac    549
Val Ser Xaa Glu Ile Gln Xaa Leu Arg Leu Glu Asp Tyr Gly Arg Tyr
    130                 135                 140

cgc tgt gag gtc atn gac ggg ctg gag gat gaa agc ggt ctg gtg gag    597
Arg Cys Glu Val Xaa Asp Gly Leu Glu Asp Glu Ser Gly Leu Val Glu
145                 150                 155                 160

ctg gag ctg cgg ggt gtg gtc ttt cct tac cag tcc ccc aac ggg cgc    645
Leu Glu Leu Arg Gly Val Val Phe Pro Tyr Gln Ser Pro Asn Gly Arg
                165                 170                 175

tac cag ttc aac ttc cac gag ggc cag cag gtc tgt gca gag cag gct    693
Tyr Gln Phe Asn Phe His Glu Gly Gln Gln Val Cys Ala Glu Gln Ala
                180                 185                 190

gcg gtg gtg gcc tcc ttt gag cag ctc ttc cgg gcc tgg gag gag ggc    741
Ala Val Val Ala Ser Phe Glu Gln Leu Phe Arg Ala Trp Glu Glu Gly
                195                 200                 205

ctg gac tgg tgc aac gcg ggc tgg ctg cag gat gcc acg gtg cag tac    789
Leu Asp Trp Cys Asn Ala Gly Trp Leu Gln Asp Ala Thr Val Gln Tyr
    210                 215                 220

ccc atc atg ttg ccc cgg cag ccc tgc ggt ggc ccg gac ctg gca cct    837
Pro Ile Met Leu Pro Arg Gln Pro Cys Gly Gly Pro Asp Leu Ala Pro
225                 230                 235                 240
```

```
ggc gtg cga agc tac ggc ccc cgc cac cgc cgc ctg cac cgc tat gat    885
Gly Val Arg Ser Tyr Gly Pro Arg His Arg Arg Leu His Arg Tyr Asp
            245                 250                 255

gta ttc tgc ttc gct act gcc ctc arg ggg cgg gtg tac tac ctg gan    933
Val Phe Cys Phe Ala Thr Ala Leu Xaa Gly Arg Val Tyr Tyr Leu Xaa
            260                 265                 270

cac cct gag aan ctg acn ctg aca naa gca agg gaa gcc tgc caa gaa    981
His Pro Glu Xaa Leu Xaa Leu Thr Xaa Ala Arg Glu Ala Cys Gln Glu
            275                 280                 285

aaa t                                                              985
Lys
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<210> 8
<211> 289
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<222> (135)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
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<222> (149)
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<220>
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<220>
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<220>
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<220>
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<220>
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<400> 8
Met Gly Leu Leu Leu Leu Val Pro Leu Leu Leu Leu Pro Gly Ser Tyr
 1               5                  10                  15

Gly Leu Pro Phe Tyr Tyr Gly Phe Tyr Tyr Ser Asn Ser Ala Asn Asp
            20                  25                  30

Gln Asn Leu Gly Asn Gly His Gly Lys Asp Leu Xaa Asn Gly Val Lys
        35                  40                  45

Leu Val Val Glu Thr Pro Glu Glu Thr Leu Phe Thr Tyr Gln Gly Ala
    50                  55                  60

Ser Val Ile Leu Pro Cys Arg Tyr Arg Tyr Glu Pro Ala Leu Val Ser
65                  70                  75                  80
```

Pro Arg Arg Val Arg Val Lys Trp Trp Lys Leu Ser Glu Asn Gly Ala
            85   90   95

Pro Glu Lys Asp Val Leu Val Ala Ile Gly Leu Arg His Arg Ser Phe
            100   105   110

Gly Asp Tyr Gln Gly Arg Val His Leu Arg Gln Asp Lys Glu His Asp
        115   120   125

Val Ser Xaa Glu Ile Gln Xaa Leu Arg Leu Glu Asp Tyr Gly Arg Tyr
    130   135   140

Arg Cys Glu Val Xaa Asp Gly Leu Glu Asp Glu Ser Gly Leu Val Glu
145   150   155   160

Leu Glu Leu Arg Gly Val Val Phe Pro Tyr Gln Ser Pro Asn Gly Arg
            165   170   175

Tyr Gln Phe Asn Phe His Glu Gly Gln Gln Val Cys Ala Glu Gln Ala
            180   185   190

Ala Val Val Ala Ser Phe Glu Gln Leu Phe Arg Ala Trp Glu Glu Gly
    195   200   205

Leu Asp Trp Cys Asn Ala Gly Trp Leu Gln Asp Ala Thr Val Gln Tyr
    210   215   220

Pro Ile Met Leu Pro Arg Gln Pro Cys Gly Gly Pro Asp Leu Ala Pro
225   230   235   240

Gly Val Arg Ser Tyr Gly Pro Arg His Arg Arg Leu His Arg Tyr Asp
            245   250   255

Val Phe Cys Phe Ala Thr Ala Leu Xaa Gly Arg Val Tyr Tyr Leu Xaa
            260   265   270

His Pro Glu Xaa Leu Xaa Leu Thr Xaa Ala Arg Glu Ala Cys Gln Glu
        275   280   285

Lys

<210> 9
<211> 355
<212> PRT
<213> Homo sapiens

<400> 9

Met	Thr	Ser	Leu	Leu	Phe	Leu	Val	Leu	Ile	Ser	Val	Cys	Trp	Ala	Glu
1				5					10					15

Pro His Pro Asp Asn Ser Ser Leu Glu His Glu Arg Ile Ile His Ile
            20   25   30

Gln Glu Glu Asn Gly Pro Arg Leu Leu Val Val Ala Glu Gln Ala Lys
        35   40   45

Ile Phe Ser Gln Arg Gly Gly Asn Val Thr Leu Pro Cys Lys Phe Tyr
    50   55   60

His Glu His Thr Ser Thr Ala Gly Ser Gly Thr His Lys Ile Arg Val
65   70   75   80

Lys Trp Thr Lys Leu Thr Ser Asp Tyr Leu Lys Glu Val Asp Val Phe
            85   90   95

Val Ala Met Gly His His Arg Lys Ser Tyr Gly Lys Tyr Gln Gly Arg
            100   105   110

Val Phe Leu Arg Glu Ser Ser Glu Asn Asp Ala Ser Leu Ile Ile Thr
        115   120   125

Asn Ile Met Leu Glu Asp Tyr Gly Arg Tyr Lys Cys Glu Val Ile Glu
    130   135   140

Gly Leu Glu Asp Asp Thr Ala Val Val Ala Leu Asn Leu Glu Gly Val
145   150   155   160

Val Phe Pro Tyr Ser Pro Arg Leu Gly Arg Tyr Asn Leu Asn Phe His
            165   170   175

Glu Ala Gln Gln Ala Cys Leu Asp Gln Asp Ser Ile Ile Ala Ser Phe
            180   185   190

Asp Gln Leu Tyr Glu Ala Trp Arg Ser Gly Leu Asp Trp Cys Asn Ala
        195   200   205

Gly Trp Leu Ser Asp Gly Ser Val Gln Tyr Pro Ile Thr Lys Pro Arg
        210   215   220

Glu Pro Cys Gly Gly Lys Asn Thr Val Pro Gly Val Arg Asn Tyr Gly
225   230   235   240

Phe Trp Asp Lys Glu Arg Ser Arg Tyr Asp Val Phe Cys Phe Thr Ser
            245   250   255

Asn Phe Asn Gly Arg Phe Tyr Tyr Leu Ile His Pro Thr Lys Leu Thr
            260   265   270

Tyr Asp Glu Ala Val Gln Ala Cys Leu Lys Asp Gly Ala Gln Ile Ala
        275   280   285

Lys Val Gly Gln Ile Phe Ala Ala Trp Lys Leu Leu Gly Tyr Asp Arg
        290   295   300

Cys Asp Ala Gly Trp Leu Ala Asp Gly Ser Val Arg Tyr Pro Ile Ser
305   310   315   320

Arg Pro Arg Lys Arg Cys Ser Pro Asn Glu Ala Ala Val Arg Phe Val
            325   330   335

Gly Phe Pro Asp Lys Lys His Lys Leu Tyr Gly Val Tyr Cys Phe Arg
            340   345   350

Ala Tyr Asn
        355

<210> 10
<211> 1259
<212> DNA
<213> Homo sapiens

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<222> (199)..(1257)

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<223> n equals a, t, g or c


<220>
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<220>
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<222> (1149)
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<223> n equals a, t, g or c


<220>
<221> misc_feature
<222> (1172)
<223> n equals a, t, g or c
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<220>
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<220>
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<223> n equals a, t, g or c

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ggaatcacat gcacagttgt ggatttytgc aaacaggaca acgggggctg tgcaaaggtg 60

gccagatgct cccagaaggg cacgaaggtc tcctgcagct gccagaaggg atacaaaggg 120

gacgggcaca gctgcacaga gatagacccc tgtgcagacg gccttaacgg agggtgtcac 180

gagcacgcca cctgtaag atg aca ggc ccg ggc aag cac aag tgt gag tgt   231
                     Met Thr Gly Pro Gly Lys His Lys Cys Glu Cys
                      1   5   10

aaa agt cac tat gtc gga gat ggg ctg aac tgt gag ccg gag cag ctg   279
Lys Ser His Tyr Val Gly Asp Gly Leu Asn Cys Glu Pro Glu Gln Leu
             15   20   25

ccc att gac cgc tgc tta cag gac aat ggg cag tgc cat gca gac gcc   327
Pro Ile Asp Arg Cys Leu Gln Asp Asn Gly Gln Cys His Ala Asp Ala
         30   35   40

aaa tgt gtc gac ctc cac ttc cag gat acc act gtt ggg gtg ttc cat   375
Lys Cys Val Asp Leu His Phe Gln Asp Thr Thr Val Gly Val Phe His
     45   50   55

```
cta cgc tcc cca ctg ggc cag tat aag ctg acc ttt gac aaa gcc aga    423
Leu Arg Ser Pro Leu Gly Gln Tyr Lys Leu Thr Phe Asp Lys Ala Arg
 60              65                  70                  75

gag gcc tgt gcc aac gaa gct gcg acc atg gca acc tac aac cag ctc    471
Glu Ala Cys Ala Asn Glu Ala Ala Thr Met Ala Thr Tyr Asn Gln Leu
                80                  85                  90

tcc tat nnc cag aag gcc aag tac cac ctg tgc tca gca ggc tgg ctg    519
Ser Tyr Xaa Gln Lys Ala Lys Tyr His Leu Cys Ser Ala Gly Trp Leu
                95                  100                 105

gag acc ggg cgg gtt gcc tac ccc aca gcc ttc gcc tcc cag aac tgt    567
Glu Thr Gly Arg Val Ala Tyr Pro Thr Ala Phe Ala Ser Gln Asn Cys
            110                 115                 120

ggc tct ggt gtg gtt ggg ata gtg gac tat gga cct aga ccc aac aag    615
Gly Ser Gly Val Val Gly Ile Val Asp Tyr Gly Pro Arg Pro Asn Lys
            125                 130                 135

agt gaa atg tgg gat gtc ttc tgc tat cgg atg aaa gat gtg aac tgc    663
Ser Glu Met Trp Asp Val Phe Cys Tyr Arg Met Lys Asp Val Asn Cys
140                 145                 150                 155

acc tnc aag gtg ggc tat gtg gga gat ggc ttc tca tac agt ggg aac    711
Thr Xaa Lys Val Gly Tyr Val Gly Asp Gly Phe Ser Tyr Ser Gly Asn
            160                 165                 170

ctg ctg cag gtc ctg atg tcc ttc ccc tca ctc aca aac ttc ctg acg    759
Leu Leu Gln Val Leu Met Ser Phe Pro Ser Leu Thr Asn Phe Leu Thr
            175                 180                 185

gaa gtg ctg gcc tat tcc aac agc tca gct cga ggc cgt gca ttt cta    807
Glu Val Leu Ala Tyr Ser Asn Ser Ser Ala Arg Gly Arg Ala Phe Leu
            190                 195                 200

gaa cac ctg act gac ctg tcc atc cgc ggc acc ctc ttt gtn cca cag    855
Glu His Leu Thr Asp Leu Ser Ile Arg Gly Thr Leu Phe Val Pro Gln
            205                 210                 215
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```
aac agt ggg ctg ggg gag aat gag acc ttg tct ggg cgg gac atc gag      903
Asn Ser Gly Leu Gly Glu Asn Glu Thr Leu Ser Gly Arg Asp Ile Glu
220                 225                 230                 235

cac cac ctc gcc aat gtc agc atg ttt ttc tac aat gac ctt gtc aat      951
His His Leu Ala Asn Val Ser Met Phe Phe Tyr Asn Asp Leu Val Asn
                240                 245                 250

ggc acc acc ctg caa acg agg ctg gga agc aag ctg ctc atc act gac      999
Gly Thr Thr Leu Gln Thr Arg Leu Gly Ser Lys Leu Leu Ile Thr Asp
                255                 260                 ·265

aga cag gac cca ctc cac ccg acg gag acc agg tgt gtt gat gga aga     1047
Arg Gln Asp Pro Leu His Pro Thr Glu Thr Arg Cys Val Asp Gly Arg
                270                 275                 280

gac act ctg gag tgg gac atc tgt gcc tcc aat ggg atc aca cat gtc     1095
Asp Thr Leu Glu Trp Asp Ile Cys Ala Ser Asn Gly Ile Thr His Val
                285                 290                 295

att tcc agg yct tta aaa gca ccc cct gcc ccc gtg acc ttg ncc cac     1143
Ile Ser Arg Xaa Leu Lys Ala Pro Pro Ala Pro Val Thr Leu Xaa His
300                 305                 310                 315

act ggn ttg gga gna ggg atc ttc tnt gnc atc atc ctg gtg act ggg     1191
Thr Gly Leu Gly Xaa Gly Ile Phe Xaa Xaa Ile Ile Leu Val Thr Gly
                320                 325                 330

gct gtt gcc ttg gct gct tac tcc tac ttt cgg ata aac cgg aaa aca     1239
Ala Val Ala Leu Ala Ala Tyr Ser Tyr Phe Arg Ile Asn Arg Lys Thr
                335                 340                 345

atc ggc ttc can cat ttt ga                                          1259
Ile Gly Phe Xaa His Phe
        350
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<210> 11
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<212> PRT
<213> Homo sapiens

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<220>
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<220>
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<400> 11

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Gly Asp Gly Leu Asn Cys Glu Pro Glu Gln Leu Pro Ile Asp Arg Cys
                20              25                  30

Leu Gln Asp Asn Gly Gln Cys His Ala Asp Ala Lys Cys Val Asp Leu
            35              40                  45

His Phe Gln Asp Thr Thr Val Gly Val Phe His Leu Arg Ser Pro Leu
        50              55                  60

Gly Gln Tyr Lys Leu Thr Phe Asp Lys Ala Arg Glu Ala Cys Ala Asn
65                  70                  75                      80

Glu Ala Ala Thr Met Ala Thr Tyr Asn Gln Leu Ser Tyr Xaa Gln Lys
            85                  90                  95

Ala Lys Tyr His Leu Cys Ser Ala Gly Trp Leu Glu Thr Gly Arg Val
            100             105                 110

Ala Tyr Pro Thr Ala Phe Ala Ser Gln Asn Cys Gly Ser Gly Val Val
        115             120                 125

Gly Ile Val Asp Tyr Gly Pro Arg Pro Asn Lys Ser Glu Met Trp Asp
    130             135                 140

Val Phe Cys Tyr Arg Met Lys Asp Val Asn Cys Thr Xaa Lys Val Gly
145                 150                 155                 160

Tyr Val Gly Asp Gly Phe Ser Tyr Ser Gly Asn Leu Leu Gln Val Leu
            165                 170                 175

Met Ser Phe Pro Ser Leu Thr Asn Phe Leu Thr Glu Val Leu Ala Tyr
            180             185                 190

Ser Asn Ser Ser Ala Arg Gly Arg Ala Phe Leu Glu His Leu Thr Asp
        195             200                 205

Leu Ser Ile Arg Gly Thr Leu Phe Val Pro Gln Asn Ser Gly Leu Gly
    210             215                 220
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Glu Asn Glu Thr Leu Ser Gly Arg Asp Ile Glu His His Leu Ala Asn
225   230   235   240

Val Ser Met Phe Phe Tyr Asn Asp Leu Val Asn Gly Thr Thr Leu Gln
            245   250 ·   255

Thr Arg Leu Gly Ser Lys Leu Leu Ile Thr Asp Arg Gln Asp Pro Leu
            260   265   270

His Pro Thr Glu Thr Arg Cys Val Asp Gly Arg Asp Thr Leu Glu Trp
            275   280   285

Asp Ile Cys Ala Ser Asn Gly Ile Thr His Val Ile Ser Arg Xaa Leu
            290   295   300

Lys Ala Pro Pro Ala Pro Val Thr Leu Xaa His Thr Gly Leu Gly Xaa
305   310   315   320

Gly Ile Phe Xaa Xaa Ile Ile Leu Val Thr Gly Ala Val Ala Leu Ala
            325   330   335

Ala Tyr Ser Tyr Phe Arg Ile Asn Arg Lys Thr Ile Gly Phe Xaa His
            340   345   350

Phe

<210> 12
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<212> PRT
<213> Mus musculus

<400> 12
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  1   5   10   15

Gly Trp Gly Phe Lys Asn Gly Ile Phe His Asn Ser Ile Trp Leu Glu
            20   25   30

Gln Ala Ala Gly Val Tyr His Arg Glu Ala Arg Ala Gly Arg Tyr Lys
            35   40   45

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Leu Thr Tyr Ala Glu Ala Lys Ala Val Cys Glu Phe Glu Gly Gly Arg
    50              55              60

Leu Ala Thr Tyr Lys Gln Leu Glu Ala Ala Arg Lys Ile Gly Phe His
65              70              75              80

Val Cys Ala Ala Gly Trp Met Ala Lys Gly Arg Val Gly Tyr Pro Ile
            85              90              95

Val Lys Pro Gly Pro Asn Cys Gly Phe Gly Lys Thr Gly Ile Ile Asp
            100             105             110

Tyr Gly Ile Arg Leu Asn Arg Ser Glu Arg Trp Asp Ala Tyr Cys Tyr
        115             120             125

Asn Pro His Ala Lys Glu Cys Gly Gly Val Phe Thr Asp Pro Lys Arg
    130             135             140

Ile Phe Lys Ser Pro Gly Phe Pro Asn Glu Tyr Asp Asp Asn Gln Val
145             150             155             160

Cys Tyr Trp His Ile Arg Leu Lys Tyr Gly Gln Arg Ile His Leu Ser
            165             170             175

Phe Leu Asp Phe Asp Leu Glu His Asp Pro Gly Cys Leu Ala Asp Tyr
            180             185             190

Val Glu Ile Tyr Asp Ser Tyr Asp Asp Val His Gly Phe Val Gly Arg
        195             200             205

Tyr Cys Gly Asp Glu Leu Pro Glu Asp Ile Ile Ser Thr Gly Asn Val
    210             215             220

Met Thr Leu Lys Phe Leu Ser Asp Ala Ser Val Thr Ala Gly Gly Phe
225             230             235             240

Gln Ile Lys Tyr Val Thr Val Asp Pro Ala Ser Lys Ser Ser Gln Ala
            245             250             255

Lys Asn Thr Ser Thr Thr Gly Asn Lys Lys Phe Leu Pro Gly Arg Phe
            260             265             270
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Ser His Leu
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<220>
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<400> 13
gcagcaggat ccatgatgga ccagggctgc cgggaaatcc ttac   44

<210> 14
<211> 44
<212> DNA
<213> artificial sequence

<220>
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<400> 14
gcagcatcta gatcacttga ctgtgaggat cctctgggtg tcag   44

<210> 15
<211> 45
<212> DNA
<213> artificial sequence

<220>
<223> contains an EcoRI restriction site

<400> 15
gcagcaggat ccatggtcac ttgtacctgc ctgcccgact acgag   45

<210> 16
<211> 45
<212> DNA
<213> artificial sequence

<220>
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<400> 16
gcagcaggat ccatggtcac ttgtacctgc ctgcccgact acgag   45

<210> 17
<211> 48
<212> DNA
<213> artificial sequence

<220>
<223> contains an EcoRI restriction site

<400> 17
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<210> 18
<211> 46
<212> DNA
<213> artificial sequence

<220>
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<223> n equals a, t, g or c

<220>
<223> contains a XhoI restriction site

<400> 18
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<210> 19
<211> 44
<212> DNA
<213> artificial sequence

<220>
<223> contains an EcoRI restriction site

<400> 19
gcagcaggat ccatgacagg cccgggcaag cacaagtgtg agtg   44

<210> 20
<211> 49
<212> DNA
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<220>
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<223> n equals a, t, g or c

<220>
<223> contains a XhoI restriction site

<400> 20
gcagcatcta gatcaaaatg ntggaagccg attgttttcc ggtttatcc   49

<210> 21
<211> 50
<212> DNA
<213> artificial sequence

<220>
<223> contains a BglII restriction site

<400> 21
gcagcaagat ctgccatcat gatggaccag ggctgccggg aaatccttac   50

<210> 22
<211> 45
<212> DNA
<213> artificial sequence

<220>
<223> contains a XbaI restriction site

<400> 22
gcagcatcta gatcacttga ctgtgaggat cctctgggtg tcagg   45

<210> 23
<211> 51
<212> DNA
<213> artificial sequence

<220>
<223> contains a BglII restriction site

<400> 23
gcagcaagat ctgccatcat ggtcacttgt acctgcctgc ccgactacga g   51

<210> 24
<211> 45
<212> DNA
<213> artificial sequence

<220>
<223> contains an XbaI restriction site

<400> 24
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<210> 25
<211> 54
<212> DNA
<213> artificial sequence

<220>
<223> contains a BglII restriction site

<400> 25
gcagcaagat ctgccatcat gggcctgttg ctcctggtcc cattgctcct gctg   54

<210> 26
<211> 46
<212> DNA
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<220>
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<222> (40)
<223> n equals a, t, g or c

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<220>
<223> contains an XbaI restriction site

<400> 26
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<210> 27
<211> 50
<212> DNA
<213> artificial sequence

<220>
<223> contains a BglII restriction site

<400> 27
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<210> 28
<211> 49
<212> DNA
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<220>
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<222> (21)
<223> n equals a,t,g, or c

<220>
<223> contains a XbaI restriction site

<400> 28
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<210> 29
<211> 50
<212> DNA
<213> artificial sequence

<220>
<223> contains a BamHI restriction site
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<400> 29
gcagcaagat ctgccatcat gatggaccag ggctgccggg aaatccttac   50

<210> 30
<211> 44
<212> DNA
<213> artificial sequence

<220>
<223> contains an XbaI restriction site

<400> 30
gcagcatcta gatcacttga ctgtgaggat cctctgggtg tcag   44

<210> 31
<211> 54
<212> DNA
<213> artificial sequence

<220>
<223> contains a BamHI restriction site

<400> 31
gcagcaagat ctgccatcat gatggtcact tgtacctgcc tgcccgacta cgag   54

<210> 32
<211> 45
<212> DNA
<213> artificial sequence

<220>
<223> contains an XbaI restriction site

<400> 32
gcagcatcta gatcacttga ctgtgaggat cctctgggtg tcagg   45

<210> 33
<211> 54
<212> DNA
<213> artificial sequence

<220>
<223> contains a BamHI restriction site

<400> 33
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<210> 34
<211> 46
<212> DNA
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<220>
<221> misc_feature
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<223> n equals a, t, g or c

<220>
<223> contains an XbaI restriction site

<400> 34
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<210> 35
<211> 50
<212> DNA
<213> artificial sequence

<220>
<223> contains a BamHI restriction site

<400> 35
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<210> 36
<211> 49
<212> DNA
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<220>
<221> misc_feature
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<223> n equals a, t, g or c

<220>
<223> contains an XbaI restriction site

<400> 36
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<210> 37
<211> 733
<212> DNA
<213> Homo sapiens

<400> 37
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tctcccggac tcctgaggtc acatgcgtgg tggtggacgt aagccacgaa gaccctgagg 180
tcaagttcaa ctggtacgtg gacggcgtgg aggtgcataa tgccaagaca aagccgcggg 240
aggagcagta caacagcacg taccgtgtgg tcagcgtcct caccgtcctg caccaggact 300
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agaaaaccat ctccaaagcc aaagggcagc cccgagaacc acaggtgtac accctgcccc 420
catcccggga tgagctgacc aagaaccagg tcagcctgac ctgcctggtc aaaggcttct 480
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gactctagag gat   733